

WHAT IS CLAIMED IS:

1. A computer-implemented method for selecting an obscured object in a computer-generated model, the method comprising:
displaying the computer-generated model on a computer screen wherein the computer-
5 generated model consists of a plurality of objects, a first set of the plurality of objects when displayed obscures a second set of the plurality of objects;
receiving first input data interpreted as an instruction to change a visibility characteristic of a
first one of the first set of the plurality of objects, the first one of the first set identified
upon receiving the first input data and by determining that the first one of the first set
10 shares a same location on the computer screen as a cursor;
modifying the visibility characteristic of the first one of the first set to cause a first one of the second set of the plurality of objects to be discernable; and
receiving second input data interpreted as an instruction to select the first one of the second
set of the plurality of objects, the first one of the second set identified upon receiving the
15 second input data and by determining that the first one of the second set shares the same location on the computer screen as the cursor; and
designating the first one of the second set of the plurality of objects as a first selected object.
2. The computer-implemented method of claim 1, wherein:
modifying the visibility characteristic causes the first one of the first set of the plurality of
20 objects to become transparent and discernable.
3. The computer-implemented method of claim 1, wherein:
modifying the visibility characteristic causes the first one of the first set of the plurality of
objects to become invisible.

4. The computer-implemented method of claim 1, wherein:
modifying the visibility characteristic causes the removal of the first one of the first set of the plurality of objects from a display structure used for constructing the computer-generated model.
- 5 5. The computer-implemented method of claim 1, wherein:
designating the first one of the second set of the plurality of objects comprises highlighting the first one of the second set of the plurality of objects.
6. The computer-implemented method of claim 1, wherein:
highlighting the first one of the second set of objects comprises one of displaying a border of
10 the first one of the second set of the plurality of objects and changing a color of the first one of the second set of the plurality of objects.
7. The computer-implemented method of claim 1, wherein:
a pointing device generates the first input data; and
the pointing device generates the second input data.
- 15 8. The computer-implemented method of claim 1, wherein:
the pointing device is a mouse device.
9. The computer-implemented method of claim 1, wherein:
the computer-generated model is a solid model; and
the first one of the first set of the plurality of objects is a face.

10. The computer-implemented method of claim 9, wherein:

the second one of the second set of the plurality of objects is one of a face, an edge, a vertex, and a surface.

11. The computer-implemented method of claim 1, wherein:

5 the computer-generated model is a solid model;
the first one of the first set of the plurality of objects is one of a vertex or an edge;
the second one of the second set of the plurality of objects is a first face adjacent to the first one of the first set of the plurality of objects; and further comprising:
modifying a visibility characteristic of a second face adjacent to the first one of the first set of
10 the plurality of objects causing at least one of the plurality of objects positioned behind the second face to be visible.

12. The computer-implemented method of claim 1, wherein:

subsequent to designating the first one of the second set of the plurality of objects as a first
selected object, reverting the first one of the first set of the plurality of objects to an initial
15 visibility state.

13. The computer-implemented method of claim 1, further comprising:

receiving third input data interpreted as an instruction to select a second one of the second
set of the plurality of objects, the second one of the second set identified upon receiving
the third input data and by determining that the second one of the second set shares the
20 same location on the computer screen as the cursor; and
highlighting the second one of the second set of the plurality of objects for distinguishing the
second one of the second set as a second selected object.

14. The computer-implemented method of claim 1, further comprising:

receiving third input data interpreted as an instruction to change a visibility characteristic of a second one of the first set of the plurality of objects, the second one of the first set identified upon receiving the third input data and by determining that the second one of the first set shares the same location on the computer screen as the cursor;

modifying the visibility characteristic of the second one of the first set of the plurality of objects to reveal a second one of the second set of the plurality of objects positioned behind the second one of the first set;

receiving fourth input data interpreted as an instruction to select a second one of the second set of the plurality of objects, the second one of the second set identified upon receiving the fourth input data and by determining that the second one of the second set shares the same location on the computer screen as the cursor; and

designating the second one of the second set of the plurality of objects as a second selected object;

highlighting the second one of the second set of the plurality of objects to visually indicate the designation as a second selected object.

15. The computer-implemented method of claim 14, wherein:

modifying the visibility characteristic of the second one of the first set of the plurality of objects causes the second one of the first set to become transparent and discernable.

16. The computer-implemented method of claim 14, wherein:

modifying the visibility characteristic of the second one of the first set of the plurality of objects causes the second one of the first set to become invisible.

17. The computer-implemented method of claim 14, wherein:

modifying the visibility characteristic of the second one of the first set of the plurality of objects causes the removal of the second one of the first set from a display structure used for constructing the computer-generated model.

5 18. A computer-implemented method for selecting an obscured object in a computer-generated model, the method comprising:

enabling selection of at least one of a plurality of obscured objects;

receiving first input data generated by a first button while a cursor positioned in accordance with data from a pointing device is located over a first object;

10 determining that the first object is an edge;

modifying a visibility characteristic of at least one of a plurality of faces sharing the edge to reveal a first one of the plurality of obscured objects positioned in a modeling space behind at least one of the plurality of faces;

receiving second input data generated by a second button while the cursor positioned in accordance with data from the pointing device is located over the first one of the plurality of obscured objects;

15 designating the first one of the plurality of obscured objects as a first selected object wherein designating comprises highlighting the first one of the plurality of obscured objects; and modifying the visibility characteristic of at least one of the plurality of faces sharing the edge

20 to a previous visibility state.

19. The computer-implemented method of claim 18, wherein:

the first one of the plurality of obscured objects is a face; and

highlighting the first one of the plurality of obscured objects comprises one of changing a line texture of a plurality of edges of the face and changing a color of the face.

20. A digital computer comprising:

a memory, data stored in said memory, and control information stored in said memory; and
a data processor for processing said data in accordance with said control information;
wherein,

5 said control information is arranged to:

process a data structure defining a model comprised of a plurality of entities to generate a
representation of a real-world three-dimensional object,

receive first input data generated by a button used in conjunction with a pointing device
controlling a location of a cursor, wherein the first input data is interpreted as a

10 command to make one of the plurality of entities invisible;

suppress display of a first one of the plurality of entities positioned beneath the cursor
when the first input data was received; and

receive second input data generated by the button, wherein second input data is
interpreted as a command to select one of the plurality of entities; and

15 designate a second one of the plurality of entities as a selected entity, the second one
designated upon receiving the second input data and determining that the second one
shares a common location with the cursor.

21. The digital computer of claim 20, wherein:

the second one of the plurality of entities is a face; and

20 said control information is further arranged to highlight the second one of the plurality of
entities by one of changing a line texture of a plurality of edges of the face and changing
a color of the face.

22. The digital computer of claim 20, wherein:

the first one of the plurality of entities is a part; and

25 the second one of the plurality of entities is one of a part, a vertex, an edge, a face, and a
surface.